



**Exploring the Universe**  
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| <b>Curriculum Area</b>                           | Science  |
| <b>Subject Area</b>                              | Earth Science  |
| <b>Grade Level</b>                               | 10 <sup>th</sup> grade   |
| <b>Learning Objectives</b>                       | <ul style="list-style-type: none"> <li>• The student will be able to demonstrate an understanding of the characteristics of the nine planets of the solar system.</li> <li>• The student will be able to communicate essential facts about the characteristics of the nine planets of the solar system.</li> </ul>   |
| <b>Correlation to the SOL</b>                    | Science ES.14<br>C/T 12.2, 12.3, 12.4  |
| <b>Video/Technology Hardware/Software Needed</b> | <p><b>For class:</b><br/>           Multimedia computer with Internet connection<br/>           Computer Projection System<br/>           Presentation software (such as <i>PowerPoint</i> or <i>KidPix</i>)<br/>           Word Processing software (such as <i>Microsoft Word</i> or <i>ClarisWorks</i>)</p> <p><b>For each student:</b><br/>           Multimedia computer with Internet connection<br/>           Presentation software (such as <i>PowerPoint</i> or <i>KidPix</i>)<br/>           Word Processing software (such as <i>Microsoft Word</i> or <i>ClarisWorks</i>)</p> <p><b>Web Site</b><br/> <i>The Nine Planets: A Multimedia Tour of the Solar System</i><br/> <a href="http://seds.lpl.arizona.edu/billa/tnp">http://seds.lpl.arizona.edu/billa/tnp</a></p> |
| <b>Materials Required</b>                        | <p><b>For each student:</b><br/> <a href="#">Electronic worksheet</a> available on each student computer workstation<br/> <a href="#">Student Project Rubric</a></p>   |
| <b>Procedures/Activities</b>                     | <ol style="list-style-type: none"> <li>1. Prior to class, load the electronic worksheet template and bookmark <i>The Nine Planets</i> Web site on each workstation.</li> <li>2. Demonstrate for the class how to access <i>The Nine Planets</i> Web site.</li> <li>3. Review the electronic worksheet. Share the <a href="#">Project Rubric</a> with students so they know what is expected.</li> <li>4. Demonstrate for the students how they will open the electronic worksheet, insert data, and save their work.</li> </ol>  |

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|  | <ol style="list-style-type: none"> <li>5. Explain to the students that they will use the information they collect to prepare an oral presentation focusing on the characteristics of one of the nine planets in the solar system.</li> <li>6. Tell the students that in addition to the information required on the worksheet they may want to collect additional data and graphics to enhance their oral presentation.</li> <li>7. Review the criteria for the presentation and explain how they will be assessed.</li> <li>8. Have students access <i>The Nine Planets</i> Web site and collect the information outlined on the electronic worksheet as well as any additional information they need for their presentation.</li> <li>9. Have students turn in their electronic worksheet (it can be printed if you prefer).</li> <li>10. When students have had sufficient time to develop their oral presentations, schedule a time for them to make the presentation to the class.</li> </ol> |
| <b>Content Assessment</b>                | Using the <a href="#">Project Rubric</a> , students will be assessed on the accuracy and quality of their worksheet and presentation.  |
| <b>Technology Integration Assessment</b> | <p>The teacher will observe the student use of the computer to both collect information and develop the presentation.</p> <p>The teacher will use criteria outlined in the <a href="#">Project Rubric</a> to determine the extent to which the student has used the technology available to accomplish the assigned task.</p>  |
| <b>Extensions</b>                        | <p><b>Research Skills:</b> In collaboration with the library media specialist, expand the assignment to include instruction in locating and using other resources to complete the assigned task</p> <p><b>Technology:</b> Have students choose the best presentation for each planet and publish these on the Web</p> <p><b>English:</b> Have students write an essay summarizing the commonalities and differences between the planets of the solar system</p> <p><b>Math:</b> Students can create a spreadsheet for their data collected and change the order of planets based on differing criteria (such as diameter, number of moons, etc.)</p>   |

# STUDENT ELECTRONIC WORKSHEET FOR "EXPLORING THE UNIVERSE"

Use the following web page to learn about planets. <http://sed.s.lpl.arizona.edu/billa/tnp>

Click through each planet and determine its diameter, distance from the sun, and number of moons. Write two interesting facts about each planet.

## Mercury

Diameter

Distance from the sun

Number of moons

- 1.
- 2.

## Venus

Diameter

Distance from the sun

Number of moons

- 1.
- 2.

## Earth

Diameter

Distance from the sun

Number of moons

1.

2.

## **Mars**

Diameter

Distance from the sun

Number of moons

1.

2.

## **Jupiter**

Diameter

Distance from the sun

Number of moons

1.

2.

## **Saturn**

Diameter

Distance from the sun

Number of moons

1.

2.

## **Uranus**

Diameter

Distance from the sun

Number of moons

1.

2.

## **Neptune**

Diameter

Distance from the sun

Number of moons

1.

2.

## **Pluto**

Diameter

Distance from the sun

Number of moons

1.

2.

## Worksheet Rubric

|   | <b>Excellent<br/>(4 pts)</b>               | <b>Well-done<br/>(3 pts)</b>   | <b>Average<br/>(2 pts.)</b>       | <b>Poor<br/>(1 pt.)</b>   | <b>Total</b> |
|---|--|--|-----------------------------------|---|--------------|
| <b>Formatting of document with text added</b> | Information is formatted to be easily read | All information is added in appropriate places with appropriate styles | Some irregularities in text added | Most information is sloppily added into document, being put on different lines or in inappropriate places or with different type styles |              |
| <b>Content of information added</b>           | Information collected is extensive         | Information collected is more than adequate                            | Information collected is adequate | Lacking information   |              |

## Presentation Rubric

|                   | <b>Excellent (4 pts.)</b>   | <b>Well-done (3 pts.)</b>   | <b>Average (2 pts.)</b>                   | <b>Poor (1 pt.)</b>   | <b>Total</b> |
|-------------------|---|---|---|---|--------------|
| <b>Technical</b>  | Presentation works flawlessly, is very clear, and uses appropriate transitions  | Presentation works well and includes appropriate transitions  | Presentation has several different slides | Presentation has minimal slides                               |              |
| <b>Content</b>    | All required information is included with extra information that is interesting and that does not take away from presentation | All required information is included with one or two pieces of extra information AND the information is clearly articulated | All required information is included      | Information is incomplete                                     |              |
| <b>Creativity</b> | Illustrations are interesting and captivating OR sound effects are used to good purpose                                       | Illustrations are interesting   | Illustrations are appropriate             | Illustrations are inappropriate OR there are no illustrations |              |